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(30) Priority Data:
60/196,027 7 April 2000 (07.04.2000) US

(71) Applicant (for all designated States except US): **THE JOHNS HOPKINS UNIVERSITY** [US/US]; Applied Physics Laboratory, 11100 Johns Hopkins Road, Laurel, MD 20723-6099 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BIERMANN, Paul, J.** [US/US]; 9563 Guilford Road, Columbia, MD 21046 (US). **ROBERTS, Jack, C.** [US/US]; 5141 Columbia Road, Columbia, MD 21044 (US).

(74) Agents: **KRIVAK, Carla, M.** et al.; The Johns Hopkins University, Applied Physics Laboratory, 11100 Johns Hopkins Road, Laurel, MD 20723-6099 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

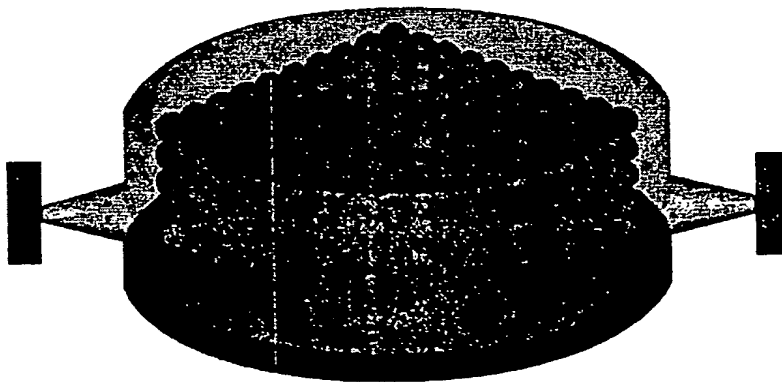
Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: STRUCTURE INCLUDING A PLURALITY OF CELLS OF CURED RESINOUS MATERIAL, METHOD OF FORMING THE STRUCTURE AND APPARATUS FOR FORMING THE STRUCTURE

(57) Abstract: A structure that includes a plurality of cells of a cured resinous material. Each cell is joined to at least one other cell.



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(51) International Patent Classification⁷: **B01J 13/02.**
C08J 9/16. 9/32 // B64G 1/00

(21) International Application Number: PCT/US01/11170

(22) International Filing Date: 5 April 2001 (05.04.2001)

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(30) Priority Data:
60/196,027 7 April 2000 (07.04.2000) US

(71) Applicant (for all designated States except US): **THE JOHNS HOPKINS UNIVERSITY** [US/US]: Applied Physics Laboratory, 11100 Johns Hopkins Road, Laurel, MD 20723-6099 (US).

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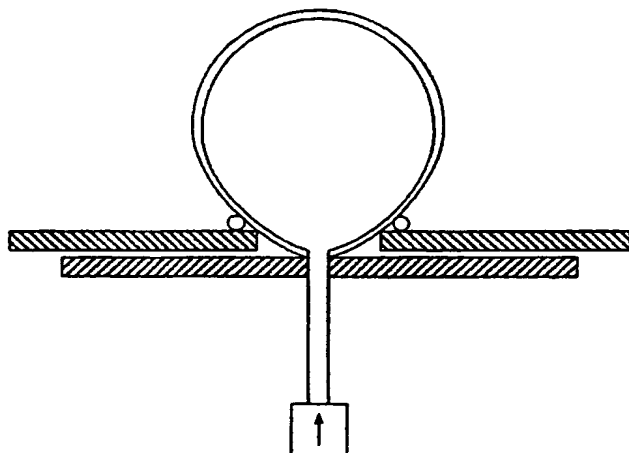
- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
11 April 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **STRUCTURE INCLUDING A PLURALITY OF CELLS OF CURED RESINOUS MATERIAL**

(57) Abstract: A structure that includes a plurality of cells of a cured resinous material. Each cell is joined to at least one other cell.



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WO 01/76944 A3

INTERNATIONAL SEARCH REPORT

International Application No

PC1/US 01/11170

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B01J13/02 C08J9/16 C08J9/32 //B64G1/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B01J C08J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 500 009 A (NIPPON ZEON CO) 26 August 1992 (1992-08-26) example 1 examples COMPARATIVE, 4, 5; table 1 claims	1-5, 8, 9
A	US 3 423 489 A (ARENS ROBERT P ET AL) 21 January 1969 (1969-01-21) figures 1-4 claims	15



Further documents are listed in the continuation of box C



Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

24 January 2002

Date of mailing of the international search report

13/02/2002

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Oudot, R

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/11170

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
EP 0500009	A	26-08-1992	JP	2047788 C	25-04-1996
			JP	4264142 A	18-09-1992
			JP	7072233 B	02-08-1995
			DE	69212343 D1	29-08-1996
			DE	69212343 T2	12-12-1996
			EP	0500009 A1	26-08-1992
			US	5274006 A	28-12-1993
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US 3423489	A	21-01-1969	BE	705960 A	30-04-1968
			CH	475002 A	15-07-1969
			DE	1586198 A1	21-05-1970
			FR	1542184 A	11-10-1968
			GB	1200200 A	29-07-1970
			NL	6714317 A , B	02-05-1968
			SE	337802 B	23-08-1971
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 1550-SPL	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 01/ 11170	International filing date (day/month/year) 04/04/2001	(Earliest) Priority Date (day/month/year) 07/04/2000
Applicant THE JOHNS HOPKINS UNIVERSITY		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

STRUCTURE INCLUDING A PLURALITY OF CELLS OF CURED RESINOUS MATERIAL

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☒ because this figure better characterizes the invention.

9☐ None of the figures.**RECEIVED****APR 26 2002****TC 1700**

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/11170

A. CLASSIFICATION OF SUBJECT MATTER:

IPC 7 B01J13/02 C08J9/16 C08J9/32 //B64G1/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B01J C08J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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EPO-Internal

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O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

24 January 2002

Date of mailing of the international search report

13/02/2002

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040. Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Oudot, R

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report		Publication date		Patent family member(s)	Publication date
EP 0500009	A	26-08-1992	JP	2047788 C	25-04-1996
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			US	5274006 A	28-12-1993

US 3423489	A	21-01-1969	BE	705960 A	30-04-1968
			CH	475002 A	15-07-1969
			DE	1586198 A1	21-05-1970
			FR	1542184 A	11-10-1968
			GB	1200200 A	29-07-1970
			NL	6714317 A ,B	02-05-1968
			SE	337802 B	23-08-1971

PATENT COOPERATION TREATY

PCT

COMMUNICATION IN CASES FOR WHICH
NO OTHER FORM IS APPLICABLE

From the INTERNATIONAL BUREAU

To:

KRIVAK, Carla, M.
The Johns Hopkins University
Applied Physics Laboratory
11100 Johns Hopkins Road
Laurel, MD 20723-6099
ETATS-UNIS D'AMERIQUE

Date of mailing (day/month/year) 10 January 2002 (10.01.02)	
Applicant's or agent's file reference 1550-SPL	REPLY DUE see paragraph 1 below
International application No. PCT/US01/11170	International filing date (day/month/year) 05 April 2001 (05.04.01)
Applicant THE JOHNS HOPKINS UNIVERSITY	

1. ☐ REPLY DUE within _____ months/days from the above date of mailing
☐ NO REPLY DUE, however, see below
☒ IMPORTANT COMMUNICATION
☐ INFORMATION ONLY

2. COMMUNICATION:

The applicant in respect of the above identified international application is notified that the receiving Office (RO/US) has corrected the International filing date.

Please correct all notifications previously sent by the International Bureau to indicate the correct filing date of:

05 April 2001 (05.04.01)

instead of:

04 April 2001 (04.04.01)

A copy of this notification has been sent to the receiving Office (RO/US), the International Searching Authority, the International Preliminary Examining Authority and the elected Offices concerned.

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The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer Jocelyne REY-MILLET Telephone No. (41-22) 338.83.38
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